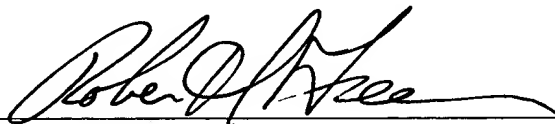


**TRANSMITTAL OF APPEAL BRIEF**Docket No.
APT-0006

In re Application of: Takaaki Hirai et al.

Application No.
09/856,468-Conf. #6366Filing Date
June 7, 2001Examiner
V. S. ChangGroup Art Unit
1771Invention: PRE-EXPANDED PARTICLES OF CRYSTALLINE AROMATIC POLYESTER-BASED
RESIN, AND IN MOLD EXPANDED PRODUCT AND EXPANDED LAMINATE USING
THE SAME**TO THE COMMISSIONER OF PATENTS:**Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal
filed: Concurrently HerewithThe fee for filing this Appeal Brief is \$ 340.00☒ Large Entity ☐ Small Entity☐ A petition for extension of time is also enclosed.

The fee for the extension of time is _____

☐ A check in the amount of _____ is enclosed.☒ Charge the amount of the fee to Deposit Account No. 18-0013
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credit any overpayment to Deposit Account No. 18-0013
This sheet is submitted in duplicate.

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Docket No.: APT-0006
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Takaaki Hirai et al.

Application No.: 09/856,468

Confirmation No.: 6366

Filed: June 7, 2001

Art Unit: 1771

For: PRE-EXPANDED PARTICLES OF
CRYSTALLINE AROMATIC POLYESTER-
BASED RESIN, AND IN MOLD EXPANDED
PRODUCT AND EXPANDED LAMINATE
USING THE SAME

Examiner: V. S. Chang

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on November 4, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

- | | |
|------|-----------------------------------|
| I. | Real Party In Interest |
| II | Related Appeals and Interferences |
| III. | Status of Claims |

IV.	Status of Amendments
V.	Summary of Invention
VI.	Issues
VII.	Arguments
VIII.	Claims Involved in the Appeal
IX.	Evidence
X.	Related Proceedings
Appendix A	Claims

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

The real party in interest for this appeal is Sekisui Plastics Co., Ltd. of Osaka, Japan (“Sekisui”). An assignment of all rights in the present application to Sekisui was executed by the inventors and recorded by the U.S. Patent and Trademark Office at **reel 012012, frame 0726**.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board’s decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 18 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 2, 9
2. Claims withdrawn from consideration but not canceled: none
3. Claims pending: 1, 3-8, and 10-20
4. Claims allowed: none
5. Claims rejected: 1, 3-8, and 10-20

C. Claims On Appeal

The claims on appeal are claims 1, 3-8, and 10-20

IV. STATUS OF AMENDMENTS

Applicant did not file an Amendment After Final Rejection.

Applicant filed an Amendment in response to the first Office Action on July 2, 2003, following a personal Interview. The examiner responded to the Amendment with a Final Rejection. Applicant filed an Amendment After Final on November 21, 2003, and the examiner responded by entering the Amendment in an Advisory Action mailed December 18, 2003. Applicant filed a Request for Continued Examination with an Amendment on January 21, 2004, along with a first inventor Declaration. A non-final Office Action dated March 4, 2004 rejected all pending claims, with all claim amendments having been entered. Applicant filed a Request for Reconsideration under 37 C.F.R. §1.111 in response to the new non-final Office Action on June 21, 2004, along with a second inventor Declaration. The examiner responded with a Final Rejection on August 4, 2004, which is the subject of this Appeal.

Accordingly, the claims enclosed herein as Appendix A incorporates all amendments to claims 1, 3-8 and 10-20.

V. SUMMARY OF INVENTION

Claim 1 recites pre-expanded foam particles formed from a moldable crystalline aromatic polyester resin, said particles having a bulk density in the range of from 0.01 to 1.0 g/cm³, crystallinity in the range of from 1 to 8% and a crystallization peak temperature in the range of from 130 to 180°C, wherein the resin contains at least one moiety of a moiety derived from isophthalic acid or a moiety derived from 1,4-cyclohexanedimethanol in a total amount ranging from 0.5 to 10% by weight of the crystalline aromatic polyester resin.

See, for example, the specification at page 6, last paragraph to page 7, line 4 and page 11, line 12 to page 12, line 7.

The crystallization peak temperature is the temperature at which a maximum crystallization speed is reached during a heating process. The crystallization peak temperature is a function of the materials used to form the pre-expanded foam particles. For example, the present specification (page 9, lines 20 to 24) teaches that PET has a crystallization peak temperature that does not reach 130 °C. As claim 1 recites, where the resin for pre-expanded foam particle contains at least one moiety of a moiety derived from isophthalic acid or a moiety derived from 1,4-cyclohexanedimethanol in a total amount ranging from 0.5 to 10% by weight of the crystalline aromatic polyester resin, the crystallization peak temperature is within the range set forth in this claim, and the crystallinity is in the range of from 1 to 8%. See Tables 5 to 7 (pages 72 to 74), Comparative Example 4, and the supporting text.

The concentrations recited in the claim goes directly to the chemical structure of the claimed moldable crystalline aromatic polyester resin pre-expanded foam particle. This is in contrast to concentrations of elements in a mixture or solution. The claimed range of isophthalic acid or 1,4-cyclohexanedimethanol provides superior results compared to resins having such monomer components outside of such a range.

When heating and fusing the pre-expanded particles to produce a molded foam article, the fusion between the pre-expanded particles is excellent, thereby making it possible to produce a cavity-molded foam article having excellent mechanical strength with the pre-expanded particles having crystallinity in the range of from 1 to 8%. This effectiveness is discussed variously in the specification, for example, page 26, line 23 to page 27, line 17 and at page 36, lines 20-25.

VI. GROUNDS OF REJECTION

1. Claims 1, 3-8 and 10-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 08-174590 ("JP '590") in view of U.S. Patent No. 5,475,037 to Park et al. (Park et al. '037").

VII. ARGUMENT

In the Office Action of March 3, 2004, the following rejections were presented by the Examiner:

- (i) 35 U.S.C. §112, first paragraph

None

- (ii) 35 U.S.C. §112, second paragraph

None

- (iii) 35 U.S.C. §102

None

- (iv) 35 U.S.C. §103

- (1) The Examiner rejected claims 1, 3-8 and 10-20 under 35 U.S.C. §103(a) as being unpatentable over JP 08-174590 ("JP '590") in view of U.S. Patent No. 5,475,037 to Park et al. (Park et al. '037").

Claim 1

Appellant notes that while the final Office Action that is the subject of this appeal rejects the claims under §103(a) as being unpatentable over JP '590 in view of Park et al. '037, many of the examiner's arguments refer to "anticipation" as well as arguing the references separately. Appellant will address these arguments as appropriate. The final Office Action also refers the March 4, 2004 non-final Office Action regarding discussions of the rejections. Appellants will attempt to clarify in the following discussion which paper is being referred.

The Office Action acknowledges that JP '590 does not disclose, teach or suggest a prefoamed product having a crystallinity lower than 8.5%. See final Office Action at page 2, last paragraph. The Office Action makes no representation that Park et al. '037 makes up for this deficiency. Accordingly, a prima facie case of obviousness has not been presented, and the rejection should not be sustained.

The amorphous polyester of Park et al. '037 comprises isophthalic acid as a co-monomer in a concentration of 15 to 50%. See column 3, lines 15-16. This is because it is impossible to provide the amorphous polyester if the isophthalic acid concentration is lower than 15%.

In contrast, the polyester in JP '590 is crystalline. The claimed polyester is also crystalline, and comprises isophthalic acid as a co-monomer in a concentration of 0.5 to 10%, i.e., lower than 15%. Generally, a polyester comprising isophthalic acid as a co-monomer in a concentration of not lower than 15% is amorphous, and in no way crystalline.

The Office Action incorrectly states the following: "The examiner notes that the combined teachings of JP '590 and Park clearly point to a suitable co-monomer concentration in the range of less than 15 wt%, which encompasses the instantly claimed 0.5 to 10 wt%. As such, the examiner asserts that, in the absence of unexpected results, a suitable co-monomer concentration is either implicitly disclosed by JP '590 in view of Park...." See Office Action at page 4, third paragraph.

However, **JP '590** states nothing about the co-monomer concentration, but rather **teaches the range of crystallinity**. Park et al. '037 discloses the amorphous polyester comprising isophthalic acid as the co-monomer in a concentration of 15 to 50% (see column 3, lines 15-16), but does not disclose, teach or suggest a crystalline polyester comprising isophthalic acid as the co-monomer in a concentration lower than 15%.

The amorphous polyester of Park et al. '037 is not applicable to the present claimed crystalline polyester because the crystalline polyester is intrinsically different from the amorphous polyester. Accordingly, the examiner's understanding of JP '590 and Park et al. '037 is incorrect, especially as stated at page 4, lines 6-11 and 15-18.

Still further, according to JP '590, "The crystallinity of the prepuffs is preferably not higher than 25%, more preferably not higher than 20%, further more preferably not higher than 15%." See column 3, lines 35-38. However, the crystallinities of the foamed sheets prepared according to Examples 1-3 in JP '590 are:

	Crystallinities	
	Surface portion of foamed sheet	Center portion of foamed sheet
Example 1	10%	10.5%
Example 2	8.6%	9.0%
Example 3	10.3%	10.5%

Mr. Hirai, who is the inventor of JP '590 and the present invention, makes the following statement in Declaration #2: "When I made the invention of JP '590, it was impossible to prepare a prefoamed product having a surface crystallinity of lower than 8.6% and a center crystallinity of lower than 9.0%." To demonstrate the criticality of the crystallinity range, an executed Declaration by the inventor was previously submitted. The inventor declared that pre-expanded particles having a crystallinity in the range of 1 to 8% is critical. None of the cited references discloses or suggests pre-expanded particles having a crystallinity in the range of 1 to 8%, or the advantages resulted therefrom.

In practice, the prepuffs prepared according to JP '590 have a lower crystallinity limit of 8.6%, even though the specification of JP '590 states that the crystallinity of the prepuffs is preferably not higher than 25%.

In contrast, the present invention for the first time prepares prepuffs having a crystallinity of 1 to 8%. Therefore, the novel claim element is the crystallinity in the range of from 1% to 8%.

The meaning and effect of the crystallinity of the prepuffs in the range from 1% to 8% are described in detail in the Experiment Report previously submitted.

As described in the Experiment Report, the prepuffs prepared in Experiment 1 have a crystallinity of 7.4%, and the prepuffs prepared in Experiment 2 have a crystallinity of 8.5%. The prepuffs prepared in Experiment 3 have a crystallinity of 1.4%, and the prepuffs prepared in Experiment 4 have a crystallinity of 0.5%.

According to the Experiment Report (November 7, 2003) attached to the Declaration, the fusion ratio of a molded foam article is 55% when using pre-expanded particles having a 7.4% crystallinity. In contrast, an excellent fusion ratio of a molded foam article is 91% when using pre-expanded particles having a 1.4% crystallinity. This is summarized in the table attached to the Experiment Report. However, the fusion ratio of a molded foam article is a low value of 38%, using pre-expanded foam particles having a crystallinity of 8.5%. Moreover, the fusion ratio of a molded foam article made with pre-expanded particles having a crystallinity of 0.5% is not measurable.

The molded foam products produced from the prepuffs having a crystallinity within the range from 1% to 8% in Experiments 1 and 3 each have advantageous fusion ratio, flexural strength and deflection. In contrast, the molded foam products produced from the prepuffs having a crystallinity outside the range from 1% to 8% in Experiments 2 and 4 each have an unacceptable fusion ratio, flexural strength and deflection.

In summary, this present invention makes it possible for the first time to prepare prepuffs having a crystallinity in the range from 1% to 8%, which is therefore novel and unobvious over the applied references.

The final Office Action alleges that “the combined teachings of JP ‘590 and Park either anticipate the instant invention, or render the invention as obvious optimization....” Office Action at page 4, lines 12-13. The Office Action then alleges that the Declaration of Mr. Harai dated 6/21/2004 “appears to be lacking evidentiary support for this argument.” See Office Action at page 4, lines 15-16. Appellants first wish to point out that the combined teaching cannot anticipate the claimed invention as a matter of law, they can only render an invention obvious.

Regarding the alleged “obvious optimization,” it is well settled under the appropriate rule of law concerning optimization of ranges and differences in chemical structures, that the evidence presented in the present specification establishes the criticality of the claimed concentration (0.5 to

10%) of either 1,4-cyclohexanedimethanol or isophthalic acid and the superior results obtained from such a concentration and the claimed pre-expanded particles having a crystallinity of 1 to 8%.

M.P.E.P. § 2144.05 instructs that an invention is not obvious over prior art that discloses differences in concentrations between chemicals in the prior art and in a claimed invention, where there is evidence on record establishing the criticality of the claimed concentration. The present specification clearly establishes a showing of the criticality of having between 0.5 and 10% of either 1,4-cyclohexanedimethanol or isophthalic acid in the moldable crystalline aromatic polyester resin pre-expanded foam particles of the invention, as well as 1 to 8% crystallinity of the pre-expanded particles. The claimed concentration is not one selected merely to avoid the prior art ex post. Rather, the specification and claims as filed repeatedly suggest the criticality of the claimed parameters.

On page 12, lines 8 to 16, the specification teaches:

"When the total content of the IPA unit and/or CHDM unit is smaller than 0.5% by weight, the effect of inhibiting the crystallization is not exerted. On the other hand, when the content of the IPA unit and/or CHDM unit exceeds 10% by weight, the crystallization rate becomes too slow. In either case, a molded foam article or a laminated molded foam article, having a good appearance, strength, and heat-resistance can not be produced....

Clearly then, the present application teaches that the intended product produced by the present invention can not be produced when the ranges of the IPA (isophthalic acid) or the CHDM (1,4-cyclohexanedimethanol) are outside of the claimed range. This statement is, of course, evidence establishing criticality of the claimed range, and is sufficient to satisfy an obviousness rejection. Further, the statements are supported by experimental evidence provided in the present specification. See Tables 5 to 7 (pages 72 to 74), Comparative Example 4, and the supporting text for experimental evidence supporting these statements. See also inventor declaration, discussed above.

Additionally, the concentrations recited in the claims go directly to the chemical structure of the claimed moldable crystalline aromatic polyester resin pre-expanded foam particle. This is in

contrast to concentrations of elements in a mixture or solution. M.P.E.P. §2144.09 instructs that an assertion of obviousness based on structural similarity is overcome by proof that the claimed compound provides unexpected results or possesses superior properties. The above discussion clearly explains how the claimed range of isophthalic acid or 1,4-cyclohexanedimethanol provides superior results compared to resins having monomer components outside of the claimed range. For at least the above reasons, the rejections of the claims cannot be sustained.

Still further, even if a prima facie case of obviousness was established, as the Examiner has not contradicted the criticality of the claimed range or the superior properties, the obviousness is overcome, and the rejection should not be sustained.

Still further, "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992). As discussed above, Park et al. '037 requires amorphous polyester, which is impossible to produce when the claimed range of 0.5 to 10% by weight of a moiety of isophthalic acid is used. Thus, this modification is not disclosed, taught or suggested by Park et al. '037, therefore such a modification is inconsistent with the teachings of Park et al. '037. Stated differently, Park et al. '037 teaches away from this modification. Accordingly, a prima facie case of obviousness has not been established, and the rejection should not be sustained.

As conceded by the Examiner, JP '590 teaches an expanded material which has a bulk density of 0.02 to 0.7 g/cm³, but makes no mention of the bulk density of the pre-expanded particles which, prior to being expanded, form the expanded material. See Office Action (Paper No. 9) at paragraph 4, lines 4-11. There is no reason that a person of ordinary skill in the art would determine that a pre-expanded foam particles should have the presently claimed bulk density based on JP '590, when JP '590 explicitly teaches that the only material that has a bulk density which reads on that of the present claims is already in an expanded state.

Further, claim 1 teaches that the pre-expanded foam particles have "a crystallization peak temperature in the range of from 130 to 180°C." Even in the event that a person of skill in the art would happen to form a pre-expanded foam particles of the claimed bulk density discussed above from application of the teachings of JP '590, it would not naturally follow that the pre-expanded

foam particles obtained thereby would have the claimed crystallization peak temperature. The crystallization peak temperature is the temperature at which a maximum crystallization speed is reached during a heating process. The crystallization peak temperature is a function of the materials used to form the pre-expanded foam particles. For example, the present specification (page 9, lines 20 to 24) teaches that PET has a crystallization peak temperature that does not reach 130 °C. Compare this with JP '590, which teaches that PET is the most preferred resin used to form an expanded material (paragraph 0015). As claim 1 recites, where the resin pre-expanded foam particle contains at least one moiety of a moiety derived from isophthalic acid or a moiety derived from 1,4-cyclohexanedimethanol in a total amount ranging from 0.5 to 10% by weight of the crystalline aromatic polyester resin, the crystallization peak temperature is within the range set forth in this claim. Applicants note that JP '590 (paragraph 0015) teaches that compounds such as isophthalic acid and cyclohexane dimethanol can be included to obtain the resin that forms the expanded material. However, JP '590 fails to teach that these compounds merely form a minor part of the resin, but instead teaches that these compounds are used as monomer units that make up a totality of a polymer. A person of ordinary skill in the art would, at best, be motivated to form a resin having a much higher concentration than 0.5 to 10% of the isophthalic acid or 1,4-cyclohexanedimethanol from reviewing JP '590, and would therefore not reach the features of claim 1. More fundamentally, the person of ordinary skill in the art would not be motivated to form a resin material having the claimed crystallization peak temperature in light of the deficient teachings of JP '590 in this respect.

The Office Action makes the sweeping assertion that "it is well known that the crystallinity of PET can be modified by copolymerizing terephthalic acid with cyclohexanedimethanol and/or isophthalic acid." See Paper No. 9 at paragraph 4, lines 13-15 and at Paper No. 0915 at paragraph 8, lines 21-23. However, both JP '590 and Park et al. '037 do not disclose, teach or suggest that pre-expanded particles have a crystallinity in the claimed range of 1 to 8%. The alleged knowledge of how to modify crystallinity does not disclose, teach or suggest the range of desired crystallinity of pre-expanded particles. Accordingly, this rejection does not rise to the level of prima facie obviousness. Accordingly this rejection should not be sustained.

Several basic factual inquiries must be made in order to determine obviousness or non-obviousness of the claims of a patent application under 35 U.S.C. § 103. These factual inquiries are set forth in Graham v. John Deere Co., 383 U.S. 1,17,148 USPQ 459,467 (1966):

Under § 103, the scope and content of the prior art to be determined; the differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.

The specific factual inquiries set forth in Graham have not been considered or properly applied by the Examiner in formulating the rejections of the subject claims. Particularly, the scope and content of the prior art and the level of ordinary skill in the pertinent art were not properly determine and demonstrated and applied to the claimed invention.

In this application, proper consideration of factual inquiries demonstrates non-obviousness of the claimed invention. JP ‘590 in view of Park et al. ‘037 do not disclose, teach or suggest all of the elements of claim 1.

It is clear that one of ordinary skill in the art would not have looked at a teaching of Park et al. ‘037 to make up for the deficiencies of JP ‘590.

Additionally, dependent claims 3-8 and 10-20, being dependent upon allowable claim 1, are also allowable for the reasons above. Moreover, these claims are further distinguished by the additional features recited therein, particularly within the claim combination.

For all of the reasons discussed above, a prima facie case of obviousness has not been presented by the examiner, and the rejection should not be sustained.

(v) Other

None

VIII. CLAIMS INVOLVED IN THE APPEAL

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A do include the amendments filed by Applicant on January 21, 2004.

IX. EVIDENCE

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.


X. RELATED PROCEEDINGS

No related proceedings are referenced in II. above, or copies of decisions in related proceedings are not provided, hence no Appendix is included.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. APT-0006 from which the undersigned is authorized to draw.

Dated: November 4, 2004

Respectfully submitted,

By 

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/856,468

1. (previously presented) Pre-expanded foam particles formed from a moldable crystalline aromatic polyester resin, said particles having a bulk density in the range of from 0.01 to 1.0 g/cm³, crystallinity in the range of from 1 to 8% and a crystallization peak temperature in the range of from 130 to 180°C, wherein the resin contains at least one moiety of a moiety derived from isophthalic acid or a moiety derived from 1,4-cyclohexanedimethanol in a total amount ranging from 0.5 to 10% by weight of the crystalline aromatic polyester resin.
2. (Canceled).
3. (previously presented) The pre-expanded foam particles of claim 1, further comprising a polytetrafluoroethylene resin in an amount ranging from 0.005 to 0.1 parts by weight based on 100 parts by weight of the crystalline aromatic polyester resin.
4. (previously presented) The pre-expanded foam particles of claim 1, obtainable by cutting a foamed extrudate.
5. (previously presented) The pre-expanded foam particles of claim 4, having a generally cylindrical shape, and a predetermined length, the foamed extrudate having a strand shape.
6. (previously presented) The pre-expanded foam particles of claim 5, wherein the melt tension of the crystalline aromatic polyester resin is in the range of from 0.7 to 3.0 g in the presence of a melt tension modifier when measured at 270°C.
7. (previously presented) The pre-expanded foam particles of claim 6, wherein an open cell ratio is in the range of from 5 to 35%.

8. (previously presented) The pre-expanded foam particles of claim 4, having the bulk density adjusted by impregnating the pre-expanded foam particles with a gas under pressure at least once and re-expanding the pre-expanded foam particles prior to molding.

9. (canceled)

10. (previously presented) A molded foam article, obtainable by filling, a mold cavity formed by closing male and female mold members of a mold with the pre-expanded foam particles of claim 1, and heating to further expand and fuse the pre-expanded foam particles in the mold cavity.

11. (previously presented) The molded foam article of claim 10, having an apparent density in the range of from 0.01 to 1.0 g/cm³ and a fusion ratio not less than 40%.

12. (previously presented) A laminated molded foam article, comprising the molded foam article of claim 10 laminated with a film or sheet of an aromatic polyester resin.

13. (previously presented) The laminated article of claim 12, wherein a peel strength of the film or sheet from the molded foam article is not less than 5 N/23 mm.

14. (previously presented) The laminated article of claim 12, produced by placing the film or sheet at least in a male mold member and/or in a female mold member of a mold, closing the male and female mold members, filling the mold cavity with the crystalline aromatic polyester resin pre-expanded foam particles of claim 1 and heating, thereby molding said crystalline aromatic polyester resin pre-expanded foam particles and laminating said crystalline aromatic polyester resin pre-expanded foam particles with said aromatic polyester resin in one step.

15. (previously presented) The pre-expanded foam particles of claim 1, further comprising a polytetrafluoroethylene resin in an amount ranging from 0.005 to 0.1 parts by weight based on 100 parts by weight of the pre-expanded foam particles, wherein the pre-expanded foam particles are obtained by cutting a strand shaped foamed extrudate into generally cylindrical shapes.

16. (previously presented) The pre-expanded foam particles of claim 15, wherein the melt tension of the crystalline aromatic polyester resin is in the range of from 0.7 to 3.0 g in the presence of a melt tension modifier when measured at 270°C, and the open cell ratio is in the range of from 5 to 35%.

17. (previously presented) The pre-expanded foam particles of claim 16, having a bulk density adjusted by pressure at least once and re-expanding the pre-expanded foam particles prior to molding and a crystallinity in the range of from 1 to 8%.

18. (previously presented) A molded foam article, obtainable by filling, a mold cavity formed by closing male and female mold members of a mold with the pre-expanded foam particles of claim 17, and heating to further expand and fuse the pre-expanded foam particles in the mold cavity.

19. (previously presented) The molded foam article of claim 18, having an apparent density in the range of from 0.01 to 1.0 g/cm³ and a fusion ratio not less than 40%.

20. (previously presented) The article of claim 13 produced by placing a film or sheet at least in a male mold member and/or in a female mold member of a mold, closing the male and female mold members, filling the mold cavity with the crystalline aromatic polyester resin pre-expanded foam particles of claim 1 and heating, thereby molding and laminating in one step.